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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/809,832

03/26/2004

Seishi Kasai

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02/27/2006

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

AN, SANG WOOK

ART UNIT

PAPER NUMBER

1732

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/809,832	Applicant(s) KASAI ET AL.	
	Examiner Sang W. An	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/26/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10 and 12-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Brodtkin et al (US 6322728).

Regarding claim 1, Brodtkin et al teach a process of producing a three-dimensionally shaped object (abstract) comprising a layer forming step of forming a powder material having a refractive index n_1 into a layer having a prescribed thickness on a support (col 3 lines 63-67 & col 4 lines 1-12), a cross-sectional shape forming step of binding the layer of the powder material formed in the foregoing step into a prescribed cross-sectional shape with a binding agent having a refractive index n_2 (col 4 lines 29-34); and repeating these steps successively, to produce said three-dimensionally shaped object (col 4 lines 38-39), wherein n_1 and n_2 satisfy the relationship of $-0.1 \leq (n_1 - n_2) \leq 0.1$ (col 8 lines 13-23).

Regarding claim 2, Brodtkin et al teach a process of producing a three-dimensionally shaped object (abstract) comprising: a layer forming step of forming a powder material having a refractive index n_1 into a layer having a prescribed thickness (col 3 lines 63-67 & col 4 lines 1-12); a cross-sectional shape forming step of feeding an ultraviolet (UV) curable binder in a cross-sectional shape into the powder material layer

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formed in the foregoing step and irradiating UV rays to cure the binder (col 6 lines 52-67), thereby forming a bound body of the powder material in the cross-sectional shape corresponding to a cut surface of a subject to be shaped cut at a certain one plane with a binding agent having a refractive index n_2 after the curing (col 4 lines 29-34); and repeating these steps successively, thereby successively laminating and forming the bound body of the powder material corresponding to a cut surface of the subject to be shaped cut at a plurality of planes (col 4 lines 38-39), wherein n_1 and n_2 satisfy the relationship of $-0.1 \leq (n_1 - n_2) \leq 0.1$ (col 8 lines 13-23).

Regarding claim 3, Brodtkin et al teach a process of producing a three-dimensionally shaped object comprising (abstract): a layer forming step of forming a powder material into a layer having a prescribed thickness (col 3 lines 63-67 & col 4 lines 1-12); a cross-sectional shape forming step of feeding a UV curable binder in a cross-sectional shape into the powder material layer formed in the foregoing step (col 6 lines 52-67), thereby forming a bound body of the powder material in the cross-sectional shape corresponding to a cut surface of a subject to be shaped with a binding agent formed by curing the binder upon irradiation with UV rays (col 4 lines 29-34); and repeating these steps successively, thereby successively laminating and forming the bound body of the powder material corresponding to a cut surface of the subject to be shaped cut at a plurality of planes (col 4 lines 38-39), wherein, a volatile component of the UV curable binder after the curing with UV rays is not more than 5 % by weight (col 5 lines 62-64).

Regarding claim 4, Brodtkin et al teach that the powder material is a cured material of the UV curable binder to be used for binding (col 5 lines 47-57).

Regarding claim 5, Brodtkin et al teach that the powder material is magnesium hydroxide, silica gel, or aluminum hydroxide (col 5 lines 41-43).

Regarding claim 6, Brodtkin et al teach that a volatile component of the UV curable binder after the curing with UV rays is not more than 5 % by weight (col 5 lines 62-64).

Regarding claim 7, Brodtkin et al teach that the magnesium hydroxide, silica gel or aluminum hydroxide in claim 5 has a mean particle size of from 0.1 to 1,000 micron (col 7 lines 53-55).

Regarding claim 8, Brodtkin et al teach that the UV curable binder contains at least one kind of polyfunctional acrylate or methacrylate monomers (col 6 line 33).

Regarding claim 9, Brodtkin et al teach that at least one kind of the polyfunctional acrylate or methacrylate monomers accounts for from 20 % by weight to 90 % by weight of the total UV curable binder (col 7 lines 36-40).

Regarding claim 10, Brodtkin et al teach that the UV curable binder contains not more than 70 % by weight of an additive for viscosity modification (col 7 line 33, examiner notes that fillers inherently change the viscosity of a matrix).

Regarding claim 12, Brodtkin et al teach that the UV curable binder contains one or more colorants of yellow (Y), magenta (M), cyan (C) and white (W) (col 5 lines 58-62).

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Regarding claim 13, Brodtkin et al teach that the colorant contains at least one kind of dyes or pigments (col 5 lines 58-62).

Regarding claim 14, Brodtkin et al teach that the UV curable binder has a viscosity of from 1 to 30 mpa-s (col 5 lines 4-8).

Regarding claim 15, Brodtkin et al teach that a feed measure of the UV curable binder into the powder material is an inkjet mode (col 4 lines 29-34).

Regarding claim 16, Brodtkin et al teach that the powder material is a fine powder having a mean particle size of from 0.1 to 1,000 micron (col 7 lines 53-55).

Regarding claim 17, Brodtkin et al teach that the powder material is a fine powder having a mean particle size of from 1 to 50 micron (col 7 lines 53-55).

Regarding claims 18-20, Brodtkin et al teach that the UV curable binder is solvent free (col 8 lines 57-59).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brodtkin et al (US 6322728) in view of Maitland (UV Printing/UV Chemistries). Brodtkin et al teach everything in claim 2 and also teach incorporating photopolymerization initiator having sensitivity to UV rays of from 450 to 250 nm (col 6 lines 61-67). However Brodtkin et al does not explicitly teach that the binder content is 0.05% by weight to 10% by weight of the initiator. Nevertheless, Maitland does teach initiator concentration of 2% to 5% (pg 3 "UV Formulation"). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use Maitland's teaching in Brodtkin's process of producing a three-dimensionally shaped object in order to reduce cost and prevent yellowing of the product.

Response to Argument

Applicant argues that the examiner is not giving any patentable weight to the "preamble" of the rejected claims. This argument with the amended claim 1 has been fully and carefully considered and has been found to be persuasive. The examiner has withdrawn the 35 U.S.C 112, second paragraph rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang W. An whose telephone number is (571) 272-1997. The examiner can normally be reached on Mon-Fri 7 AM - 3:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaiani can be reached on (571) 272-1196. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sang Wook An
Patent Examiner
Art Unit 1732
February 13, 2006



MICHAEL P. COLAIANNI
SUPERVISORY PATENT EXAMINER